

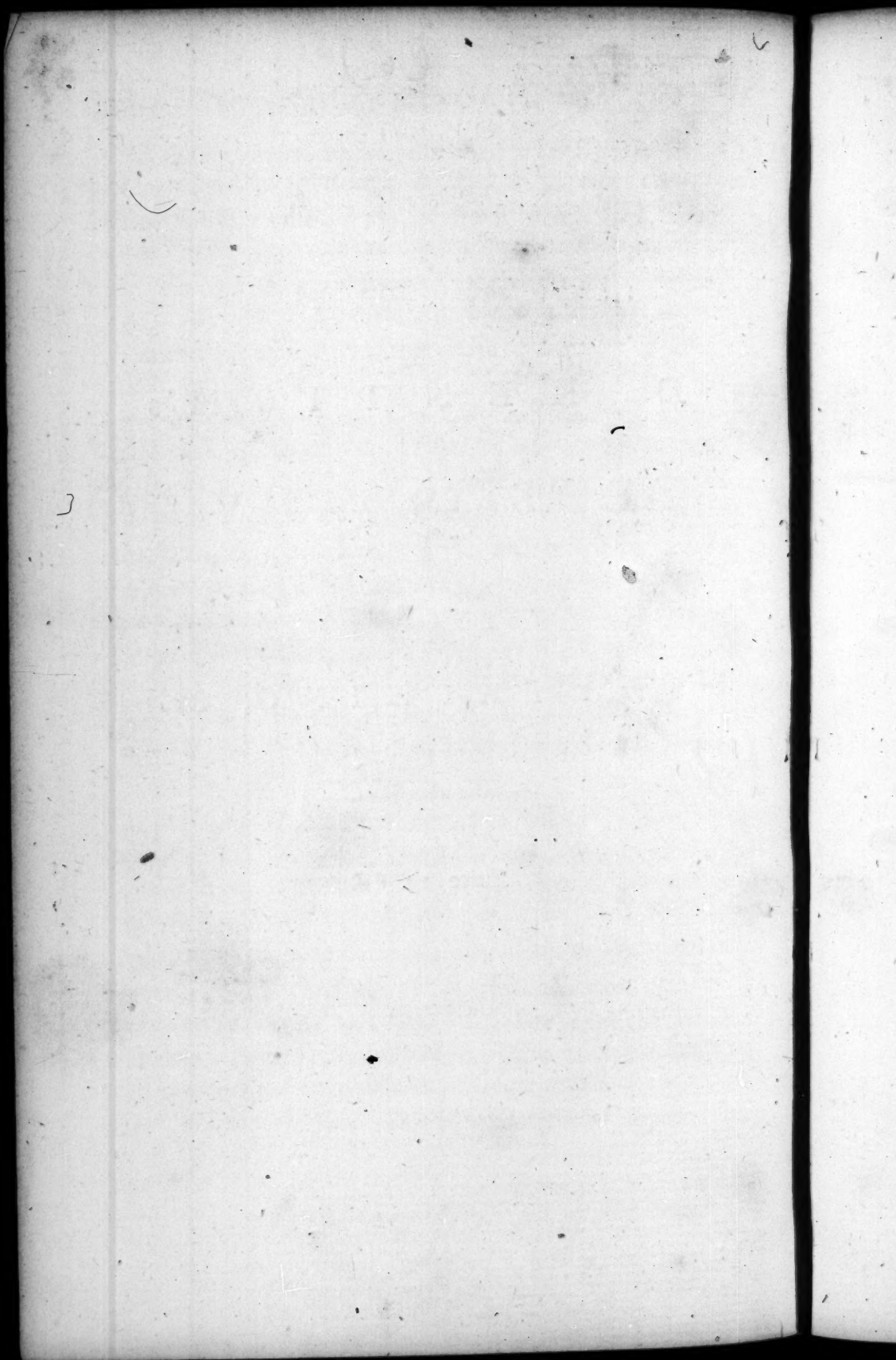
DR. KENTISH'S

ESSAY

ON

SEA-BATHING, &c.

Price 1s. 6d.

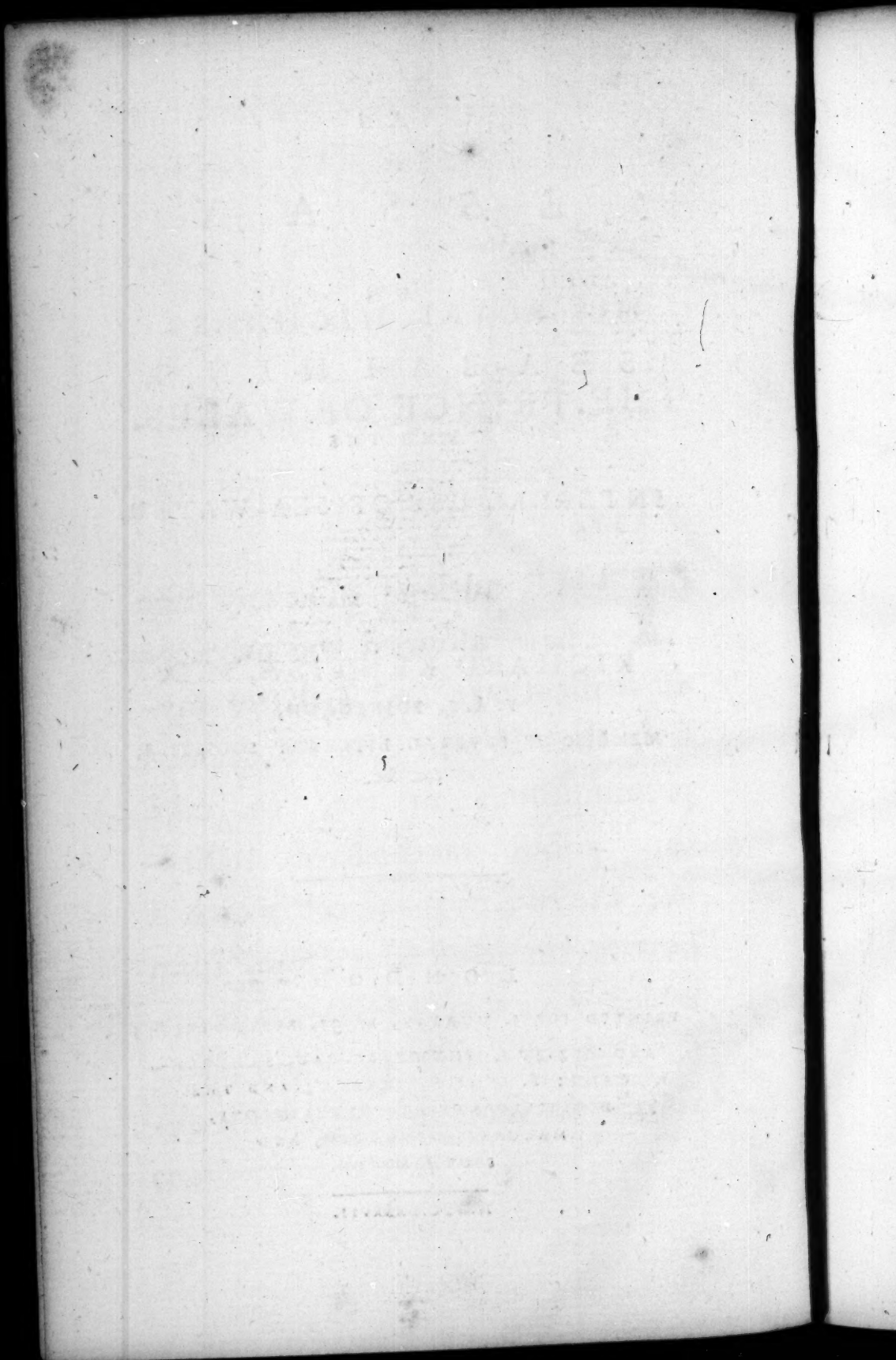


(6)
AN
ESSAY
ON
SEA-BATHING,
AND THE
INTERNAL USE OF SEA-WATER.

BY
RICHARD KENTISH, M.D.
F. A. S. EDINBURGH,
MEMBER OF SEVERAL LITERARY SOCIETIES,
&c. &c.

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M.DCC.LXXXVII.



TO
HIS ROYAL HIGHNESS
THE PRINCE OF WALES.

SIR,

THE authors of every age have assumed the privilege of dedication; and I flatter myself, that it will not be deemed presumptuous in me, to take this public method of testifying the dutiful respect which I bear to the illustrious House from which your Royal Highness is descended.—It will be unnecessary for me to stain my page with expressions
A preffions

ii DEDICATION.

pressions of servile adulation.—I shall rest contented with expressing my attachment, by a loyal pleasure in beholding the return of that splendid sun which now illuminates the dignity of your Royal Highness; and by assuring you, that I sincerely wish a continuance of that health and happiness which again surround you.

I am, SIR,

with all due respect,

Your Royal Highness's

most obedient, humble servant,

RICHARD KENTISH.

Brighthelmstone,
July 10, 1787.

P R E F A C E.

*I*T is to the Duke of—— that I am indebted for the pleasure which I have had in writing this Essay. His Grace honoured me with early intimation of the resignation which has taken place this season at Brightbelmstone; and I could not hesitate in the adoption of my present plan of becoming an annual candidate for a share of that professional employment which another physician has relinquished. But I must confess that the method which I have pursued is not the most eligible. Instead of studying with particular attention the disorders in which sea-bathing is of service, I ought to have laboured with assiduity at the more important employment of procuring that interest which infuses learning, fame, and riches to its possessors—instead of any attempt to improve my profession, and solve the dark mysteries of medicine, I ought

to have solicited support from the tutelar deities of Esculapius—from those guardian angels of Hygieia, who tend her temples, and prescribe her rites in the great city of this happy isle—a support which inspires confidence, knowledge, wisdom, and importance, in the minds of those who never saw the face of science, or laboured to pursue her paths.—For, whatever may be the opinion of philosophers, medical biography informs us, that inspiration has not yet ceased—in this learned age we have no need of academical education—no occasion for medical universities—no necessity for the irksome labour and expence of graduation:—any man, nay, any old woman, may chance to have the gift of inspiration, and occupy the art of healing. Physicians acknowledge this gift, and contentedly place themselves upon a level with their inspired brethren—they even affect to revere this supernatural science, and pay it that adoration which its spiritual origin demands. The metropolis and the country alike are blessed with

*with these divine productions; and it is matter of no small surprise to men of common sense, to trace the effects of this Promethean fire, which animates the dullest clay, and brings a doctor at once into existence and to fame.—For my own part, I am somewhat sceptical on this subject; and, though my faith has been staggered by what I have heard and seen, yet I have no confidence in the oracular infusions of the age—like the magnetical effluvia of the profound Demainaduc, they may impose upon our senses for a while, but the delusion must vanish. I am ready, however, to acknowledge, with regret, that I am no sceptic to the fate of my profession—I view with infinite compassion its rapid downfall—I see with secret pain the invasion of its privileges; and it requires not the gift of prophecy to foretel, that medicine will speedily sink beneath the attention of a gentleman. No man of liberal education will follow an occupation which presents neither honour, fame, nor emoluments, to his pursuits
—instead*

—instead of a profession, medicine is become a base and iniquitous trade. The persons who are entrusted with the lives of his Majesty's liege subjects throughout Britain—those who conduct the generality of complaints, are collectively, I fear, unacquainted with the general principles which direct successful practice; and such inevitably must be the case, till the legislature takes cognizance of the present crying abuses.—The practitioners in every department of physic ought to undergo a regular series of study, and have their distinct privileges thoroughly ascertained.—Until this is effected, imposition with impunity will shake its lofty head, and laugh at the credulity of those who honour it. But an enquiry into the present state of the practice of physic would lead us to a long detail—I must return from my digression, and inform the reader that the following Observations are written for the instruction of those who use cold-bathing, without any restriction to locality. My reasoning and directions are different from

any that have yet been presented to the public, and I flatter myself that they are worthy an attentive perusal.—More might have been said; and I am not without hopes of being able to make additions at some future opportunity; but a variety of occupations prevent me from enlarging this work at present. I shall therefore submit it, with all its inaccuracies, to the perusal of the candid reader.

Gower-street,
Bedford-square.

A SYNOPSIS, or View of those Diseases in which COLD or SEA BATHING is an approved Remedy.

THE Rickets, and most of the other Complaints
of Children.

Herpetic and Leprous Eruptions.

Elephantiasis.

Convulsions.

St. Vitus's Dance.

Hysterical Complaints.

Menstrual Obstructions.

— — Fluxes.

Female Weaknesses.

Fluor Albus.

Chlorosis.

Giddiness.

Head-ach.

Tooth-ach.

Certain periodical Pains.

— kinds of Inflammation.

— — Ulcers.

— — Tumors.

— — Wounds.

— — Sore Eyes.

The Piles.

a. Ruptures.

b. Diarrhoea.

c. Infancy.

Melancholy.

Epilepsy.

d. Apoplexy.

e. Asthma.

f. Rheumatism.

g. Some Paralytic Complaints.

Loss of Smell.

— of Taste.

Deafness.

h. Gout.

Cholera Morbus, or certain Bilious Complaints.

Jaundice.

Scrophula, or King's Evil.

Incontinence of Urine.

Obstructions of ditto.

Stone and Gravel.

Thirst.

i. Dropsy.

Atrophy.

Consumption.

Scurvy.

Universal Debility without any particular Disease.

Hætic Fever.

Profuse Sweats.

Lethargy.

j. Violent Redness of the Face.

k. — Poisons of various kinds.

l. Hydrophobia.

m. Hæmorrhages.

Gonorrhœa et Impotentia Veneris.

Siphylis.

Hiccough.

Hooping-Cough.

Hoarseness.

Profuse Spittings.

Most Complaints of the Stomach, as

Loss of Appetite,

Flatulency, &c. &c.

n. Violent Fits of Intoxication.

Obesity, or Excess of Fatness.

o. Agues, or Intermittent Fevers.

The Plague, and probably most Low Fevers.

The Confluent, or worst kind of Small Pox.

An Enlargement, or Varicose Swelling of the Veins.

Diabetes, &c.

A N N O T A T I O N S.

IN this Synopsis I have preferred utility to the appearance of erudition; and made use of the common English names of diseases, where that could with propriety be done: thus, I have mentioned sore-eyes, instead of the medical word, ophthalmia; tooth-ach, for odontalgia, &c. &c. It would have been an easy matter to have enlarged this list; but most of the complaints in which sea-bathing is an approved remedy, will be found to be comprised under some of the titles here expressed.

a. The ruptures of children proceeding from mere weakness.

b. The purgings of weak persons.

c. In almost all cases of this disease.

d. To persons subject to attacks of this nature, I have known sea-bathing, when the fit was off, operate as a preventative, conjoined with bark and tonics.

e. The humid or convulsive asthma of weak persons. Floyer.

f. The chronic rheumatism, and all the flying pains accompanying it.

g. Floyer.

h. In the atonic gout, when there is no inflammation, and after a violent fit of the regular gout, when the body is debilitated, I have known sea-bathing used with advantage. The ancients recommended it.

i. Celsus used this remedy in anasarca, and other species of dropsy.

j. This very troublesome complaint has been much mistaken; it is most frequent in nervous, debilitated constitutions, and, contrary to the common practice, requires tonic remedies. It is very different from the redness of drunkards.

k. k. Mead and Floyer.

l. Physicians observe two kinds of hæmorrhages, active, and passive; it is in the latter species, which depends on a direct debilitated state of the body, that sea-bathing is found useful, as we find in certain female cases, &c. &c.

m. "The seamen cure their sailors by throwing them into the sea when they are dead drunk, which excites their stupid senses, and makes them very sober." Floyer.

n. During my practice in a very aguish country, I have frequently recommended bathing betwixt the fits, with great advantage.

AN
ESSAY
ON
COLD OR SEA BATHING.

THE importance of a subject is often supposed to be connected with its antiquity; and authors are zealous to trace their theme to some distant origin. Medical writers have adhered, with uniform enthusiasm, to this mode of investigation; and the tenor of their attempts has been to convince the reader that they were acquainted with the opinions of others. To make any addition to the common stock of information, or attempt any general explanation

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nation of facts, has hitherto been deemed almost unworthy the pen of medical science: the spirit of scientific emulation has departed, and the guide of physic is prompt assertion: contradiction occurs in every page; and authors, in practice as well as theory, boldly maintain and deny, according to the caprice or interested wish of the moment.

THE subject before us has been wrapped in a cloud of error; and physicians, by their practice, have declared that they have no settled opinion on the mode of operation, or effects, of Cold-bathing.

SIR JOHN FLOYER, physician at Litchfield, in the year 1702, attempted to call the attention of medical men to this subject; and so great was the common prejudice at that time, that he was obliged to prove from ecclesiastical history, that cold immersion was used as a ceremony in the church

church till about the year 1600. “ And
 “ from hence (says he) I shall infer, that if
 “ God and the Church thought that prac-
 “ tice innocent for 1600 years, it must
 “ be accounted an unreasonable nicety, in
 “ this present age, to scruple either im-
 “ mersion or cold-bathing, as dangerous
 “ practices.”

THE arguments of the author succeeded,
 and custom or fashion has reconciled the
 use of cold or sea-bathing in this country.
 But it is matter of no small surprise, that,
 amidst the infinity of publications which
 have appeared, very little or no elucidation
 of this subject has been given since the
 work of Floyer, which, in the opinion of
 its author, was nothing more than a com-
 pilation from the ancients*. Dr. Ruffel,
 in 1753, wrote upon the use of sea-water;
 but his view was to recommend it as an
 internal

* “ Since the methods of cold-bathing (says he)
 “ were well known to the ancient physicians, all I pre-

internal remedy, and he can scarce be said to treat on sea-bathing. Dr. Buchan has given a few erroneous "cautions concerning cold-bathing and drinking the mineral waters;" but his observations are chiefly confined to the latter, and he has given no additions, or explanation of the subject. Some other authors have occasionally delivered their sentiments in a desultory manner; but the work of Floyer, with all its crudities and inaccuracies, is the only express book upon the subject with which I am acquainted: and whoever peruses it, must agree with me, that, exclusive of a few facts, it is little more than the correspondence of a few inebriated physicians of the age, who did not scruple to publish the effusions of their cups, and confess that the imperfections of

"tend to in this essay, is, to recommend what they
 "have done, and to take off any prejudice which the
 "moderns entertain against that practice."

FLOYER of Cold Baths, L. iv. p. 108.

their

their writing proceeded from intoxication, and the internal use of something stronger than cold water *.——This being the state of enquiry on an obscure part of medical practice, I have presumed to touch upon it, in hopes that my investigations may at least excite the attention of men of science, and my opinion be confirmed, or refuted, to the honour of medicine, and the health of the sick.

THE antiquity of cold-bathing is established beyond controversy. The Egyptians, Jews, Greeks, and Romans, are well known to have used cold immersion, either in their religious ceremonies, or private amusements. The sumptuous baths of the latter are still to be found in this country; and although they had their *thermæ* †, yet the cold-bath was used by them as an article of luxury conducive to health.

* Read Dr. Barnard's Letters, and one signed Edward Waldo, p. 269.

† Vide Gibbon's Hist. Rom. vol. iii. chap. 31, p. 214, 4to. edit.

They had their *piscina*, called by the Greeks *κολυμβητρας*, and sometimes *βαπτιστήρια*, which being placed on the north side of their baths, received cold water from some spring; and in these they made it a practice to swim after exercise. Moses in his laws retained the immersion of the patriarchs and Egyptians, and established the custom of washings and purifications. He prescribed it as a remedy in several diseases, as the leprosy, feminal, and menstruous weakness, &c.

PYTHAGORAS taught the Western nations, that purity was to be got by washings and sprinklings; and he was the first who brought the custom of cold immersions, medicinal and sacred, from Egypt into Greece. The most barbarous nations indeed have the custom of bathing, and, in some climates, of immersing their children into cold water, immediately on their birth; and the ancient inhabitants of this country had wells or springs famous for the cures which they produced. The
Gauls

Gauls had their *divona*, or sacred fountains; and it is probable that the Picts, or Britons, who descended from them, had likewise their baths, or occasional custom of washing in the rivers. A people, who in the climate of Britain made use of no other covering than what a little paint rubbed over their bodies afforded, could have no objection to the use of cold-bathing; on the contrary, we can scarce suppose that they could resist the temptation of plunging frequently into cold water. It was the custom of the Saxons to dedicate the wells or springs, famous for cures, to particular saints: thus we have the wells of St. Winifred, St. Mongah, &c. which have long been famous for the cure of rickets, leprosy, and a variety of diseases incident to children and the poor.— Camden informs us, that the leprosy was a very common disease soon after the Norman conquest; and it is conjectured that they cured it by cold-bathing. But it must be confessed, that we derive little instruction

struction from the customs of the ancient inhabitants of this island; and it appears that the practice was never used by them, as it was by the other nations of the world in hotter and colder climates. In the days of Hippocrates, cold-bathing was customary in Greece, and he applied it to the purposes of medicine. His observations, it must be confessed, are highly judicious; and it is no small reflection upon the indolence of physicians, that so few additions have been made in the space of above two thousand years. Abstracted from the crudities of theory, his facts deserve attention. —“ If any person in health (says he) cools
 “ himself very much in winter-time, ei-
 “ ther by bathing in cold water, or other-
 “ ways, the more he is cooled (if his body
 “ be not perfectly congealed) the more ve-
 “ hemently he will become hot, when he
 “ puts on his cloaths again, and comes
 “ into a house.” “ Heat (says he) suc-
 “ ceeds the use of cold;” a fact, to which
 physicians have not sufficiently attended.
 And

And he adds, " If any person heats himself very much, either by a hot-bath, or a great fire, and afterwards continues in the same place, and same habit, as he who was much cooled, he will become more cold, and appear more shivering than the other." A fact which has likewise been overlooked, till within these very few years, that the subject of heat and cold has attracted the attention of philosophers.

HIPPOCRATES ordered both the cold and hot baths to be used occasionally after eating, as well as fasting: a practice which has not been adopted by his followers; who, ever anxious to refine upon their master's facts, have restricted the use of bathing to an empty stomach. — These are the principal observations which the divine old man has left us; and, few as they may seem, yet, in reality, they are more than physicians have attended to.

It

It would be equally tedious and unprofitable to trace the progress of cold-bathing as a medical remedy in the hands of the various writers in physic, who have deluged the world of letters with books which flowed from a poisoned fountain, and with errors in opinion and in practice, that still operate to the discredit of a noble science.

MEDICINE, properly speaking, is a branch of physics; it is founded on philosophy, and, as a part of human knowledge, becomes, in some degree, the object of every scholar. But it has been the attempt of practitioners to make a mystery of their art; and, whenever they are desired to explain the principles on which they proceed, instead of information, the enquirer must be satisfied with hard words, unintelligible jargon, or the more honest confession of downright ignorance.

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THE truth is, that, to this day, there is not extant, in all the volumes of ancient or modern physic, one system, which, as a system, will stand the test of philosophical enquiry. I shall therefore be excused from detailing all the little opinions of great or little writers, and pass over the reasons why one rejected, and another admitted, the utility of cold or sea-bathing. A far more useful, and not less arduous task, will be, to present my reader with a synopsis or general view of all those disorders in which this remedy has been recommended. In doing which, I shall prefer the most common names of the complaints; it being my wish to write intelligibly, and not to puzzle those for whom my enquiry is designed. After giving a view of those diseases, which the writings of others and my own experience inform me are adapted to the proposed remedy, I shall offer some remarks on the diet and regimen to be used by sea-bathers, concluding with

observations and experiments on the *modus operandi* of cold or sea-bathing.—*Brevis esse laboro.*

A SYNOPSIS

FROM this enumeration of the diseases in which cold-bathing has been used with success, it is evident, even on the first inspection, that they are all of the same class. They are all diseases of relaxation or extreme weakness. But, obvious as this truth is, it has been overlooked by every writer on the subject; and with wonderful *sang froid* the modern practitioners send their patients to the sea-side, during the hot months, with orders to bleed, purge, and thoroughly evacuate their debilitated constitutions, before they use a remedy, whose effect is to restore the strength, which disease and physic had conspired to impair. Floyer, Ruffel, Buchan, all recommend this plan; and nothing but the happy reluctance of the sick to submit to their opinion, and adhere to the noxious rules which they laid down, could possibly have maintained that share of reputation to sea-bathing, which
it

it now possesses. Nature and common sense alike repudiate such false practice; and, instead of evacuation, it is plain that the most tonic remedies ought to be used, in the whole catalogue of diseases which we have enumerated. Can it be supposed that a sick, weakly, rickety infant, requires purging and bloodletting?—Can it be imagined that slender, delicate females, whose nervous frames are susceptible of the slightest changes, and whose habits of life subject them to great relaxation and enervation—Can it be for a moment maintained, by any person of plain understanding, that these patients, with a whole list of others labouring under loss of appetite, loss of strength, and various diseases known by the names of hysterics, St. Vitus's dance, convulsions, epilepsy, &c. —Can it be maintained that these complaints are adapted to the sanguinary rules recommended by physicians? To the sanction of reason I can add experience, and from my own practice, and the testimony of two or three very judicious practitioners,

tioners, I can affirm that they are not.—
 A very contrary treatment must be insisted upon; and, happily for mankind, the remedies are not of an unpleasant sort, or, in general, difficult to be attained. Good nourishing diet, and moderate exercise, are within the reach of most invalids, and they are the remedies to which our attention ought to be primarily directed.—Medicine is but a secondary aid—a substitute for the natural powers of food, of diet, and of regimen;—unhappily, however, physicians have reversed the view, and, instead of considering, that the existence of the body in disease, as well as in health, is supported by the same agents, they have sought for the cure of disease on different principles—they have ransacked the three kingdoms of nature, and laboured in the very elements for their imaginary powers of physic—with what success, the present state of practice, and uncertainty of cure, can tell.—I mean not, by these observations, to debase my profession—on the contrary, I mean to insist upon an important

tant truth, and wish to turn the attention of patients and physicians to their proper object—If both do not alike attend to the habits of life, neither can be benefited. The patient cannot derive relief, nor the physician credit.—When we act in concert with nature, we have much in our power—when we counteract her indications, all is mischief.

IF I am right in my assertion, that all the diseases in which sea-bathing is of service, according to the present accustomed mode of using it, are diseases of relaxed and weakened constitutions, it must follow, that the same general rules, with a few exceptions in particular cases, are adapted to all patients to whom the remedy is properly recommended.

It is unnecessary to go through a minute examination of the symptoms which characterize the various diseases in the synopsis—they are sufficiently well known to medical men, and would afford neither instruction,

instruction nor amusement to patients; I shall therefore content myself with a few general observations, which may have their use to sea-bathers themselves, as well as those who are entrusted with the care of their complaints.

AND, in the first place, let it be observed that evacuation does not necessarily precede the use of cold-bathing, either in the sea, or any other bath. In some cases it may be admitted, but in ninety-nine out of a hundred it will do great harm, and the injury thus induced cannot easily be removed. The body, in disease, as in health, ought to be kept open; and those complaints which are accompanied with bilious foulness of the stomach particularly require this caution; but purging and costiveness are equally injurious.

THE diet calculated for sea-bathers is of the most nourishing kind; and, as it is

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a medical fact (though but lately allowed) that animal food contains more real nourishment, and conduces more to give strength, than vegetables, such food ought to be used ; and it may be esteemed a good omen when such diet is preferred by the sick. The common viands, of beef, mutton, lamb, veal, pork, or poultry, according to the palate of the patient, are suitable, and require very little culinary art, to convert them into excellent articles of the *Materia Medica*. Roasted meat is commonly better adapted to weak stomachs than boiled ; but either may be allowed. Vegetables of every kind should be used sparingly. Small quantities of fruit have sometimes a good effect as laxatives ; but I once had a patient at the sea-side, who was thrown into the most violent pain, and spasmodic convulsions of the stomach, whenever she indulged in the use of vegetables, even in the smallest quantity. In general, therefore, they ought to be entirely rejected, or sparingly

sparingly used, wherever the stomach is debilitated.

FISH, plainly dressed, makes a most excellent diet for many invalids; and shell-fish is particularly recommended in disorders of the *primæ viæ*. I have known it of great service to children, and bilious persons.

THE common drink of the sick should be attended to with great exactness. In many cases malt-liquor has a bad effect, but in others, I have seen it of service; and where it does not evidently disagree, it may be used with advantage. Spirits and water may sometimes be substituted as a beverage; and we may venture to lay it down as a rule, without exception, that whenever sea-bathing is useful, according to the mode of which I am now speaking, the moderate use of strong liquors, as beer, spirits diluted with water, or wine,

cannot do harm, but, on the contrary, necessarily make a part of the regimen to be observed throughout the cure. Good Port, or Sherry, generally agrees with the stomach, and acts as a powerful tonic.

EXERCISE, and sea-air, are the great auxiliaries of sea-bathing, and very frequently prove beneficial to those invalids who cannot, or ought not to enter the bath. The purity of atmospheric air depends upon a variety of local circumstances; and, as it is a fact beyond dispute, that the purer the air, the fitter it is for the purposes of life, so there can be no doubt that the healthiness of a place is intimately connected with the purity of its atmosphere. And as the vicinity of the sea, or large tracts of pure water, is found to produce a chemical change on the state of the surrounding air, by the absorption of those impurities with which it is phlogisticated, such situations are justly supposed to have
an

an atmosphere better adapted to the purposes of respiration, than those which do not enjoy this advantage. But the salubrity of sea-air seems to depend on other properties besides its chemical qualities. Its temperature produces a considerable effect. Air which passes over a large tract of water is cooled, as well as purified; hence, at the sea-side, we feel none of those bad effects, which arise from the sultry heats of summer in inland places. A constant cooling breeze moderates the excess of heat, and, by preventing the pernicious operation of such excessive stimulus, produces the most salutary effects. I have generally observed that weakly persons, in almost every complaint, suffer more from excess of heat than cold. To thin, consumptive habits, and particularly those affected with cough, and profuse sweatings, hot air is prejudicial;—a very exact medium is required to constitute health. Some physicians have lately asserted, that they never observed sea-air of service in

pulmonary complaints; but the conclusion they infer would be rash; and it can be proved from medical writers, and undoubted testimony, that many, very many patients have experienced its salutary effects in this disorder; and I am thoroughly convinced, from my own experience, that the only reason why we do not oftener perceive such happy consequences, arises from the baneful practice which has been insisted upon in these diseases. Mistakes in medicine always entail mischief. The danger of bad treatment never appeared more fully than in that dreadful endemic disease of this island, the pulmonary consumption. Thousands have been literally sent to the grave by the lancet and low diet. And, innocent as milk may be, it has, in the hands of medical men, been converted into a most destructive poison. False notions of nourishment have given rise to false medical practice; and practitioners have imagined that they were supporting their patient, whilst they were

feeding his complaints. But it is foreign to our enquiry to pursue this observation farther. I have argued upon it at some length, in another work, which I mean to enlarge and send into the world at some future opportunity *. In this place it is sufficient to observe, that if proper diet, regimen, and medicines, be conjoined with sea-air, in pulmonary complaints, during the heat of summer, we shall often perceive its very salutary effects.

THE exercise of sea-bathers ought to be moderate, and constant. Riding, either on horseback or in a carriage, is often preferable to walking; but the latter should occasionally alternate, and in some cases be preferred. Sailing is likewise particularly adapted to some complaints. And I am of opinion that dancing, fencing, jumping, swinging, swimming, and a variety of the gymnasia, are worthy the attention of physicians, and ought to be introduced

* Dissert. Inaug. de phthisi pulmonali idiopathica.

into the *Materia Medica*, with some other pleasant remedies, under the title of *Jucunda*.

HAVING premised thus much on the regimen of the sick, it remains that I speak of the time and method of using the cold-bath. Under the advantages of a proper contrivance, cold or sea bathing may be used at any season of the year; but the time best adapted for this remedy is the heat of summer, when it presents itself as the immediate cure of many disorders, arising from the relaxation then produced. The common practice is to advise the patient to go in fasting, and, plunging the whole body and head once under water, to come out again, and dress with expedition. Such a method will agree with many; but I have met with persons who could not bear to enter the bath fasting; and I have observed bathing to disagree from this circumstance only; as it proved highly beneficial to the same persons, who used it soon after moderate eating,

eating. On this account I think myself at liberty to dissent from the common opinion, and recommend to very debilitated persons a small quantity of food previous to their entering the bath. In doing this I only revive a practice as old as Hippocrates; but it is necessary to observe, that to persons in health, and those not much weakened by disease, the common method of using the bath fasting is to be preferred.

A GREAT deal of attention is often required to make bathing agree with weakly persons; many of whom are chilled, and rendered worse, by its indiscriminate use. In some cases I have known a glass of warm wine, or stomachic medicine, of great service immediately on coming out of the water. For it must be remarked, that cold-bathing never produces any good effect, unless it is succeeded by a pleasant sensation of glowing warmth; and nothing more effectually produces this, than a grateful

grateful stimulus taken into the stomach immediately after its use. Such I have found the following :

R Conf. cardiac. ʒij.

Aq. cinnam. ten. ʒvi.

———— fort. ʒi M. fumat cochlij.

Amp. pro re nata.

Two large spoonfuls of this mixture will be found of great service, in weakly habits, especially after the first or second time of bathing; and in those cases where the bark is necessary, a decoction of it, with some of the spirituous tincture, may be substituted. A particular attention to the heat of the body is likewise requisite. If a person enters the bath when he is very cold, the debilitating effects will prevail, and many bad consequences ensue;—on the contrary, if he be too much heated, there is great danger. Caution is therefore required on the part of the sick. The morning is undoubtedly best adapted to the use of the cold-bath,

as

as we thereby derive its benefits during the heat of the day ; but I have known several sickly persons made worse by being obliged to conform to the practice of bathing early in the morning. *Diluculo surgere saluberrimum est*, is an excellent motto for the generality of invalids, as well as persons in health ; but a temporary debilitating power, with a view to produce a strengthening effect, ought not to be used when the body is in too weakened a state, lest the strength of the system should be insufficient to combat the remedy. In cases of great weakness, therefore, I would advise sea-bathing at noon ; and in general the best method is to plunge once over-head, and return into the machine immediately. Rubbing the body with dry coarse cloths, has very often the good effect of quickening the returning circulation on the surface, and wiping off a quantity of foul matter which will collect on the skin of the most cleanly person who does not use the bath. From
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a very false theory, some persons have recommended sea-bathers to plunge head-foremost into the water *, so that the head may be the first part which touches the water ; and I once knew a very courageous young lady, who, being informed of this method, had the resolution to try it, and literally caused her head not only to be the first part which touched the surface, but likewise the very bottom of the water—a practice which no person in his senses, and much less a physiologist, could possibly recommend. The fact is, that so far from the blood being driven to the head by the application of cold water to the extremities, the impetus of it in that organ is considerably diminished, and the heart, lungs, and internal viscera only receive an accumulation of that fluid. But when the head is downmost, either in or out of water, there can be no doubt but it must give rise to the greatest possible afflux of blood, and which we find

* Vid. Buchan's Domestic Med.

may be done without injury to persons in health.

IN giving directions to sea-bathers, it is necessary to remark on the subject of covering. It is customary for many persons to use an oil-skin cap, which prevents the access of water to the head, and keeps the hair dry. This practice deserves the attention of medical men, and may be regulated to the benefit of the sick. In the generality of cases, I am persuaded that it is salutary to wash the head with the rest of the body ; but where the hair is worn very long, and the person labours under great weakness, it would be attended with some degree of danger to suffer such a continued application of partial cold, as the wet hair must occasion. For we are to recollect, that the very act of its drying is a debilitating process, evaporation being well known to produce a great degree of cold. On this account, the practice of covering the head ought to be recommended in many instances ; whilst
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the more healthy bathers will feel the good effects of keeping the head cool, and washing off that fordes, which nothing but fashion could induce a cleanly person to put into his hair. It may, indeed, be for the advantage of all sick persons to get rid of this unnecessary load during the heat of summer, and, by wearing the hair thin, or short, allow of the application of cold water to the head, which has always been deemed a salutary practice, and will be found beneficial wherever it can be properly applied.— The custom of using flannel dresses appears to be necessary from decency alone. But the machines ought to be so contrived as to render them unnecessary; and wherever that is the case, it will be found better to apply the watery element to the surface of the body alone, than through the medium of wet flannel. It is, probably, from inattention to this circumstance that cold-bathing disagrees so often with the ladies, whilst gentlemen, unaccustomed to this kind of apparel, feel
more

more constantly its good effects.—These observations apply to the common mode of using cold or sea-bathing. There is, however, another method, which deserves notice. By a contrivance called the shower-bath, the application of cold may be rendered extremely useful. This mode of bathing is found particularly serviceable in cutaneous eruptions; and probably the impulse of falling water, is a stimulus well adapted to excite the action of the vessels on the surface of the body. The pumping of cold water on paralytic limbs is an ancient practice, and I have in some instances seen more good effects from it than frictions, or the hot-bath. The only difference betwixt sea and fresh water, applied externally, appears to arise from the specific gravity of the former. Some effects indeed may arise from the saline particles which are left in a state of chrySTALLIZATION upon the surface of the skin; but from the custom of rubbing the body with dry cloths, we may perhaps overlook this action, except in certain morbid

morbid affections of the skin, where it might be adviseable to let the body dry without wiping. As I have no experience on this subject, I only throw out the suggestion as a hint to others.

THESE are the principal observations necessary for sea-bathers. The subject would admit of much enlargement, but it has been my wish to abridge every part of this view, and to present the reader with a concise opinion, which in many respects will be found to militate against the routine of common practice. If I am right, other authors and practitioners have erred; but if I am in error, their judgment will prevail; and I wish to appeal only to the decision of truth. My sentiments cannot fail of exciting the attention of my profession, and such invalids as are able to judge of the rationale in argument. In this instance I am willing to be tried by the success of the event, and have no hesitation in submitting to the conclusion
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of those who candidly enquire. From what has been said it must appear by no means matter of indifference to the sick, which plan they pursue. If one set of physicians recommend bleeding, purging, and starvation, whilst others insist on good-living, wine, animal food, diluted spirits, and agreeable exercise, as the auxiliaries of sea-bathing; it may be inferred that there must be a great difference in the result of their practice as well as theory.

I HAVE scarce touched upon the administration of medicine in this discourse, as few patients will be found sceptical enough to labour under the afflictions of those dreadful diseases which are enumerated in the synopsis, without having the advice of some medical practitioner, and in the character they prefer it is their business to confide

ON THE INTERNAL USE OF
S E A - W A T E R.

IT has been the fate of physic to have remedies which at one period have risen to high estimation, and at another, have been unnoticed; and such has been the fluctuation of opinion, that the medicines of a former age, after a lapse of years, have been again revived, and by the aid of supposed novelty, or even the recommendations of antiquity, they have twice supported, and as often lost the occupancy of a favoured reputation. Sea-water is of this number. The ancients were well acquainted with its use. Hippocrates prescribed it, and Asclepiades, Themison, Celsus, and others, looked upon sea-salt as an active remedy. In the Isle of Cos, and some other of the Grecian states, they mixed it with their wine; and Celsus,

fus, treating of the scrophula, or regius morbus as he calls it, recommends, “*vinum bibere falsum græcum, ut solutio ventris remaneat.*” Pliny has given us great information on this point; and we learn that the remedy was very universal in Greece, and among the more early Roman physicians; but we do not find that it was ever adopted by the systematic writers of any note since the time of Celsus.

IN the year 1753, the attention of medical men was directed to this subject by the work of Dr. Richard Russell, physician at Lewes, who is justly venerated as the cause of that celebrity which Brighthelmstone has since acquired. The contents of this volume do credit to the author; but the service which it rendered medicine may admit of doubt. Besides an erroneous account of the chemical contents of sea-water, we have a mode of practice recommended which is con-

fessedly improper. In those dangerous diseases where sea-water is recommended instead of bleeding, purging, and low diet, a contrary system is now pursued with great advantage. And it is, probably, from this unhappy junction of opposite remedies in Dr. Russell's Tract, that the practitioners of modern times seem inclined to reject the internal use of sea-water. But the mode of reasoning from general principles, requires great circumspection, and a much greater attention to minute circumstances than is commonly given. Although we admit all the facts which are adduced in favour of sea-water when conjoined with evacuation, yet we must attend to the experience of the times, and beware lest, in the examination of an effect, we overlook the cause—a knowledge of which is the object of every rational practitioner. Diseases and obstructions of the glands are common to persons of the most weakly, delicate habits, and such complaints frequently accompany the idiopathic consumption of this country.

country. These constitutions, it is true, are not fitted for evacuation; and this disease is found to be aggravated by low diet; but when such morbid affections of the glands become universal, although they are but secondary causes of the general complaints, yet they necessarily deserve our attention, and sometimes, perhaps, ought to make the primary object of our consideration. Their removal will give strength to the system; and we shall find that it can be done without evacuation. In our enquiry after causes, we are to view effects as causes of other effects; and in all organized bodies we have great reason to attend to this remark, for every secondary cause is capable of producing powerful changes in the phenomena of life, health, and disease. The enlargement of glands may depend upon the laxity of the part, or the weakness of the whole frame; but when such an enlargement has taken place, the reduction is seldom to be effected by the common tonics alone. A

particular stimulus to the part affected is necessary, and such sea-water has been found to be. When taken internally for a considerable length of time, it has been found to remove the most dangerous glandular obstructions. If we attend to its operation, we shall see the greatest inducement for its exhibition from theory, as well as experienced facts; and we shall likewise see, that evacuation must necessarily impede, instead of promoting its action, as is the case with mercury, and other stimulant deobstruents taken into the system. When sea-water is taken into the stomach, and not hurried through the *primæ viæ*, it will be absorbed by the lacteals, and thence carried into the mass of circulating fluids, where its chemical contents will operate on the coats and contents of the vessels through which it passes. Marine salt, Glauber's salt, and Epsom salt, which are the principal active parts dissolved in the water of the sea, when taken into the mass of circulating fluids, must necessarily produce

duce a powerful stimulant effect, particularly on the excretory organs through which they pass. Accordingly we find, that the kidneys are stimulated to an increased secretion of urine, by these saline substances, which seldom fail of acting, in some degree, as diuretics; and it is a fact well known to graziers, that common salt is a sovereign remedy in that dreadful plague, the rot of sheep; which I have had an opportunity of knowing, from dissection, is commonly attended with a disease of the liver in these animals. In that complaint, this organ is commonly found to be enlarged, and of a putrid appearance, having the gall-ducts filled with animalculæ. I know a gentleman, who, upon the certainty of the experiment, bought a great number of rotten sheep at a low price, and, by giving them daily a quantity of common salt sprinkled upon their hay, they gradually recovered, and were again sold at a high price. My friend was first induced to place confidence

in this remedy, by observing that a sheep of his, when very ill, from the rot, or some similar complaint, used daily to lick one part of the wall in the yard where it was confined, and which part he found to abound with a saline efflorescence, very common on damp walls. As the animal, by this instinctive knowledge, derived benefit from salt, he had no doubt of the event of the experiment which we have described.

I SHALL conclude my observations on the utility of marine salt, with the opinion of a great man. Dr. Black, in his Lectures, remarks, that “ this salt is very antiseptic, and assists or promotes digestion; and is known to be a necessary of life to man: but,” says he, “ on a transient view, it does not appear to be so to other animals; yet I think it really is: for this salt is certainly found in the purest and freshest water. In Germany and Asia it is given to cattle.
“ In

“ In America the wild animals are well
 “ known to flock in amazing herds, mak-
 “ ing passages through the thickest woods
 “ down to the sea-side, or salt-springs,
 “ to taste the salt. It is there used as a
 “ bait for deer; and an offer of salt is
 “ more tempting there, than an offer of
 “ corn.”

“ SIR JOHN PRINGLE’S discoveries
 “ have been thought to account for this
 “ utility of salt. He found large quan-
 “ tities to prevent, and small ones to
 “ promote putrefaction: — hence some
 “ have thought, that it promotes the ne-
 “ cessary degree of putrefaction in our
 “ alimentary canal. A small quantity is
 “ found to kill some of the carnivorous
 “ animals, as the hog; — therefore it
 “ would seem to be the best corrector of
 “ vegetable and acescent food. As it is
 “ the most useful, so it is the most plen-
 “ tiful, of all the salts*.”

* Extracted from my MS. notes, taken at Dr.
 Black’s Lectures.

FROM

FROM all these arguments we conclude, that sea-water, as a solution of common and other salts, may become a very powerful remedy, in the hands of a judicious physician. I shall here subjoin a table of those diseases, in which it has been successfully used.

A SYNOPSIS

**A SYNOPSIS of those DISEASES,
in which the INTERNAL USE of SEA-
WATER is an approved Remedy.**

Scrophulous Swellings and Sores.

_____ of the Neck.

_____ Eyes, &c. &c.

Strumous Swellings.

Humid and dry or scurfy Leprosy.

American Scrophula.

Swelled Legs, and enlarged stiff Joints, from the Gout
or Rheumatism.

Diseased Glands of the Uterus.

Jaundice.

Colic.

Dropfy.

Consumption.

Scrophulous Ozæna, or Complaint in the Nose, with
Swellings of the upper Lip.

Ulcer of the Tibia with Caries.

Tenesmus, with Ouzings of bloody Ichor.

Itching and Tubercles of the Pudenda.

Cough, with glandular Swellings in the Neck, and
bilious Vomitings, with profuse Spittings.

•• Dr. Russell has mentioned a case or two of Chorea Sancti Viti,
Gonorrhœa, and Hernia Humoralis, in which this remedy was tried,
conjoined with others; but no inference can be drawn of its utility; and
I should think it unlikely to do service in those case

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IT only remains, that we add something on the mode of using sea-water internally. It is customary to join other remedies with it; and there are cases, in which this junction is necessary.—Mercurials, in small doses, are often serviceable, but they require caution. *Æthiops*, antimony, cinnabar, and the calcined ashes of submarine plants, with burnt sponge, corallines, millepedes, and a variety of other articles, are recommended; but I never observed any powerful effect in them, although I have frequently known them continued for a length of time. The *Æthiops vegetabilis*, which is the calcined ashes of a species of *fucus*, or sea-weed, was first introduced into the shops by Dr. Russell, but it has never obtained great credit. The fossil alkali and some of the neutral salts might, probably, assist sea-water; but if we can persuade patients to take a sufficient quantity of this remedy, they will seldom be necessary; a strict attention

tention to proper diet and regimen being enjoined. I must confess myself an advocate for the ancient practice of medicating wines with salt; and I am of opinion that these two remedies mutually assist each other. I have now a patient who has received great benefit from so small a quantity as a single wine-glass of sea-water drank every evening. The lady was afflicted with troublesome cough, attended with a great deal of phlegm, and bilious vomitings in a morning. She had large glandular swellings under the chin, and in the neck, which, upon the use of this small quantity of sea-water, conjoined with animal food and wine, have gradually lessened; and the cough, with sickness and vomitings, nearly left her, before she continued the remedies a week.—But, notwithstanding the happy success in this case, I am persuaded that a much larger quantity ought to be taken, and continued for a great length of time, in most cases. If the remedy does not purge, too much can scarcely be taken.

And

And happy indeed is it for mankind, that they are possessed of any remedy (however nauseous) which can effect a cure upon complaints, so far beyond the reach of immediate operation, as glandular diseases.

ON THE OPERATION OF
COLD OR SEA BATHING.

IN reasoning upon this subject, we must attend equally to the facts of chymistry and physiology.—By the former we learn, that cold is only the negation of heat. By the latter we know, that the living body cannot exist without a certain proportion of this universal principle, which pervades all nature, and is the efficient cause of animation, vigor, and all the phenomena of life. The organized and unorganized parts of matter alike acknowledge the universality of heat: by its operation, order and uniformity in appearance is maintained: by its excess or defect the mode of existence is altered, and annihilation frequently ensues the slightest deviation in degree: solids become fluids or *vice versa*: vegetables and animals cease to live in extremes of this grand agent of nature; but they have the singular property of retaining their natural temperature in

very great excesses of heat or cold. The temperature of the human body is asserted to be 97° of *Fahrenheit, and the degree of external heat fixed upon by philosophers, as the standard of health, is 64° of Fahrenheit. Every continued deviation from this standard is supposed to produce a morbid change on the human body. An excess has been said to act as stimulant and a defect as sedative. But great confusion has entered the arguments of physicians on this subject. Some have maintained, that heat being positive, and cold negative, the former must have one uniform action, in opposition to the latter; and as heat, in one instance, is a positive stimulus, so in every instance, whether above or below the standard, it is still a stimulus, and must produce, though in a lesser degree, the same stimulant effects;—others affirm, that heat below 64 or 60° of Fahrenheit is always a sedative to the action of the living powers. But the dispute is of words, and the conclusion is the same in both cases. By a lesser stimulus, the

* Vid. Gov. Ellis's Paper, Phil. Transf. vol. iv. p. 755. et Mem. de l'Acad. année 1764.

former mean what the latter intend by the word sedative. Hence we find, that it is universally agreed among physicians, as well as philosophers, that the properties of heat are stimulant. Dr. Cullen was the first who ventured to affirm, that cold, or the negation of this powerful stimulant, may itself, in certain circumstances, become a stimulant. His arguments, or rather his facts, demand attention. "Considering," says he, "how much the vital principle of animals depends upon heat, it cannot be doubted, that the power of cold is always, more or less, directly sedative. But it is equally manifest, that, *in certain circumstances*, cold proves a stimulus to the living body, and particularly to the sanguiferous system." Great objections have been made to this opinion, and it has been said, by those who pretend to argue on philosophical principles, that such effects cannot be; two opposite effects can never arise from the same cause! the

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same power can never be at the same time stimulant and sedative!—Granted.—

But what follows? The same power cannot produce precisely the same effects, unless it be in precisely the same circumstances. If, therefore, the circumstances vary, the cause varies, and the effects must vary likewise. This is the consequence of the true mode of philosophizing, but it is a result which has been strangely overlooked by the most ingenious of medical reasoners. The followers of Dr. Brown, whose chief aim has too often been merely to contradict the professor we have mentioned, have fallen into this practical error; for I maintain, that errors in theory are the foundation of errors in practice, and these systematists, captivated by the speciousness of a system which professed to have its basis in the true philosophy, and which affects to quote Newton and Bacon as its example in argument, have strangely forsaken their own principles: they have even ventured

tured to deny the efficacy of cold-bathing, and, because it appeared to militate against their doctrine, they hold it hurtful in those diseases where experience shews its efficacy, and rashly denounce an anathema on one of the most powerful remedies in physic. But the doctrine of stimulants has laid the foundation of errors, hypothetical and practical.—Circumstances and minute contingencies have not been sufficiently attended to.—The same power which operates as a stimulant on the living system in one circumstance, may in different circumstances, nay, must produce, in some degree, different effects.

If this be granted me, and I know no sophistry by which it can be denied, I shall think myself justifiable in maintaining, that Dr. Cullen's argument is valid; and, although I am by no means the advocate of his doctrines, in general, yet, as the searcher after truth, I will accord to his reasoning on the operation of cold,

and assert, that it is, as an abstraction of heat, a sedative; but that, in effect, the circumstances being varied, it may prove a stimulus to the living body; and it appears, that this operation is not limited to the human species, but follows as a natural consequence of the property of universal diffusibility which heat possesses. According to this property, bodies become heated in proportion to their capacities for receiving heat, and the greatest capacity for sensible heat is cold. It therefore follows, that whenever a body happens to be colder than the circumjacent bodies, the nature of sensible heat, chemically ascertained, is such, that a portion of it must leave the substance which it formerly occupied, and enter the matter thus capacitated to receive it. When the human body, by the external application of cold, is partially deprived of its heat, its capacity for heat being increased, it must follow, that whenever the same body, thus capacitated, comes within

within the operation of heat, an accumulation of that property, whatever it may be, must necessarily take place. And, the effect of heat being acknowledged to be a stimulus to the living system, it must follow, that an increased capacity, with an increased accumulation, must produce stimulant effects.—Accordingly we find, that the consequence of a preternatural deprivation of heat, to a certain degree, is an increased capacity for heat; and the consequent accumulation of this matter, or property, on the return of the body to the situation whence it can be acquired, is a stimulant operation. This follows our mode of reasoning, and we shall find the opinion established by experiment.

HENCE, whenever the body is deprived of its proportional degree of heat (within certain limits) the effect of that deprivation is an increased capacity, and the operation of that increased capacity a stimulus to the system.—Thus a person sud-

denly deprived of a portion of the heat of his system, whether it existed in a sensible or latent state, on his return to those circumstances where the heat can be recovered, will feel, in a very sensible degree, the return of this stimulus. A view of what actually happens in the cold-bath will confirm this reasoning. The body, on its immersion in the cold water, suddenly loses a portion of heat, particularly of the heat of the surface; and, as long as the parts continue exposed to this degree of cold, a continued abstraction of heat is the consequence: but the instant that the body is out of the water, or in such circumstances as to receive heat from an ambient atmosphere, that instant will its return be perceptible, and the effect of such return will be stimulant.

HENCE, after bathing, we feel a glowing warmth, a recovery of sensible heat on the surface of the whole frame, which, exciting the action of the vessels, proves a
 tonic

tonic or stimulus to the whole system; and, in a medical view, we must expect the most powerful effects from such a universal stimulus. In all diseases of general weakness, the circulation on the surface and extremities is very languid—the vessels and muscular fibres become inert, lose their tone and action, and are incapacitated for the functions of health; but by the application of an universal stimulus to the surface, the living principle is excited, and the action of every part is made whole. Thus much we learn from the chemical nature of heat; whilst a farther attention to physiology gives an additional explanation of what happens in cold-bathing.—The blood, being suddenly driven from the surface to the heart, and internal vessels, proves a powerful stimulus, and excites their action in an unusual manner. Hence, on the removal of cold, the blood is quickly propelled to the smaller vessels, which, conjoined with the accumulation of heat from the at-

mosphere, is the cause of the glow and other stimulant effects which succeed the cold-bath.—From this view of the operation of cold it must appear, that the cold or sea bath is calculated for diseases of weak habits; and accordingly we find the complaints enumerated in the synopsis, all of this kind.—But it must be observed, that we are here treating of the sudden application of cold, and the consequent sudden application of heat; for if this remedy be gradually applied, and long continued, the living system will be so much weakened, that the return of heat to the surface will be insufficient to excite the action of the vessels in such a manner as to give strength, and the action of the larger vessels being impaired, they will be unable to propel the blood into the smaller;—hence the paleness and cold which succeed too long a continuance in the water. For we are not to admit the full force of Hippocrates's remark, that “the more the body is cooled (if it is
“ not

“ not perfectly congealed) the more it
 “ will afterwards become hot.” A con-
 tinued application of cold, below 60°,
 proves debilitating.

HENCE we find, that in this remedy
 we possess, according to the circumstances
 of its application, a real stimulant or seda-
 tive power. The cold-bath may, under
 due regulation, be useful in two different
 diseases. A tendency to inflammation may
 be checked by the continued application
 of cold air or cold water; and it is here
 worthy our remark, that the young and
 healthful bathers, persons of full habits,
 and accustomed to high living, ought to
 be cautious in the use of the bath as a
 stimulant. They require cold as cold,
 and not with a view to its operation in
 producing heat. They should continue
 in the water for a longer space of time
 than invalids, and by a little attention
 they will soon perceive the duration re-
 quired. Healthy swimmers and divers,
 who

who accustom themselves to continue long in the water, find a cool and refreshing effect from it, and if they do not continue too long they are strengthened; but a very trifling excess debilitates the strongest men. The medium should be studied. What would extinguish the living principle of one person may be salutary to another*. It is impossible to fix the precise degree of cold which may, or even ought to be applied as a remedy to different persons, under different circumstances; the sum of our observations is this:—The weaker the person, the more sudden should be the application of cold, to produce a stimulant effect. For the more suddenly the body is deprived of its heat, the more quickly will it recover it

* I find, on enquiry, that the bathing guides are really debilitated by their continuance in the water; and, notwithstanding their frequent recourse to spirituous liquors, they usually experience some ill effects from it, at the latter end of the season.

from

from the surrounding atmosphere. But if a sedative effect is required, the duration should be greater.—It will scarce seem necessary to enlarge on the other effects of cold, as what has been said will suffice to shew, that, as exciting salutary or moderating morbid actions, it will occasionally act as a tonic strengthening remedy. The astringent property depends, likewise, upon the general operation, and requires no separate consideration. The same may be said of a diuretic effect, observable by those who frequent the bath.

In this investigation of the operation of cold, we only consider the water as the medium of application—the effects of it are the same, however applied. When the body is chilled by cold air, on its return to a warm atmosphere, the sensation of glowing warmth is perceived, and the stimulus of the re-entering heat is evident. But, if it is too sudden, a sense of pain is induced, as we perceive by warming
ing

ing our hands at a fire in the winter, when they have been half frozen with cold.

LAVATION in water is certainly the most salutary mode of applying cold, as we thereby get rid of impurities, which might prove the occasional cause of diseases; and, independant of this action, it seems to produce effect by its superior capacity for heat.—The gravity of sea-water has been supposed to produce specific effects, and the physicians of the mechanical sect endeavoured to explain the effects of cold-bathing on the principle of pressure alone; but as this opinion, with several others, equally futile, is now rejected, I shall not think it necessary to enter more fully into the subject. The specific gravity of the water may, with great propriety, be overlooked, as it affords no solution of the phenomena of bathing. The degree of temperature is the object of consideration, and deserves the minute attention of medical men.

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IN this enquiry I have not thought it necessary to enter at large into the doctrine of latent and sensible heat. Neither have I insisted upon the opinion of some philosophers, that the living body has the property of generating heat and cold in certain circumstances, when morbidly threatened with either. The experiments of Dr. Fordyce, Sir Joseph Banks, Dr. Blagden, Dr. Crawford, and Mr. John Hunter, put this matter beyond all doubt. But the fact does not appear to afford any aid to our present investigation, although it informs us, that violent excesses of heat and cold may be suffered with less impunity than we could have imagined.—The too frequent use of the bath, by habituating the body to a new stimulus, may prove prejudicial. Invalids should, therefore, be cautioned against it. Probably three or four times a week may not be improper, but the frequency must depend on contingency.

THESE

THESE are the observations which I have thought it necessary to premise, previous to the detail of my own experiments on the subject, which have been very numerous—But I shall only describe such as from their diversity or peculiarity may afford some elucidation of this obscure subject.

EXPERI-

E X P E R I M E N T S.

I.

BEFORE breakfast, my pulse 72° in a minute, I walked to the sea-water bath, and, after plunging over head, stood upright in the bath; which not being full, I immediately perceived a sense of glowing warmth over that part of the body which was out of the water, whilst my legs, and the rest of my body in the water, were painfully cold. The thermometer in the shade of the room 68°; in the bath 56°. On sitting up to the chin in the water for about two minutes, my pulse lowered to 66. On coming out of the bath, and putting on my cloaths, it beat 78. I then went up to the knees in the bath, and felt a chilly rigor over my whole body, and in three minutes my

* Farenheit.

pulse fell to 66; but on coming out again it rose to 72. Notwithstanding that I ate a hearty breakfast, on my return home I found myself chilly and cold, with a slight head-ach throughout the day, which I could not help attributing to this experiment.

II.

BEFORE breakfast I walked down to the sea-side, and counted my pulse before I undressed in the machine, which to my great surprise was 104 in a minute. Having had a bad night, and feeling very unwell, I was rather alarmed at this unexpected velocity; but not being in a perspiration, I went into the water, and, after swimming a few minutes, attempted to count my pulse; but, unluckily, a large wave overwhelmed me and my stop-watch. This accident interrupted the experiment. After dressing myself, I felt much refreshed, and, on walking home, found my pulse at 72.

I WAS

I WAS greatly invigorated by this experiment; and, from my previous indisposition, had reason to attribute the event to bathing.

III.

AFTER a good breakfast, pulse 78, I went into the cold sea-bath. The thermometer 68° in the shade of the room, and 61 in the bath. I walked in gradually, and sat up to the chin in the water, endeavouring to count my pulse at the wrist, but it was not perceptible; neither could I perceive the pulsations of my heart. Continuing in this situation near five minutes, with the same result, I plunged over head, and on coming out found my pulse 86. In a few minutes I returned to my former situation, sitting up to the chin in the bath; my pulse was again imperceptible; but on coming out, after remaining near fifteen minutes in the bath, it rose to 85, and I had a glowing warmth.—I repeated this experi-

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ment

ment upon my servant, who was with me. His pulse 60, and full. I kept hold of his wrist. He complained much of the extreme cold, saying it was much colder than the sea. When he was up to the shoulders, his pulse was imperceptible at the wrist, temporal arteries, and the region of the heart itself. I still kept hold of his wrist, and as he walked slowly out of the bath, his pulse became gradually perceptible, and rose to 72. He re-entered the bath with the same result.

IV.

AT noon the thermometer 73 in the shade.

AFTER walking about half a mile on the beach, I undressed, and went into the sea. Pulse 96. Thermometer in the sea 66. Having found some difficulty in holding my watch and counting my pulse at the same time, I took a servant with me. After dipping once over head, I attempted to number my pulse, and that of the servant, but it was impracticable.

He

He shook excessively with cold, and my own pulse was imperceptible. After continuing about a quarter of an hour, swimming and diving, I felt myself fatigued, and walked to the beach, when I was surprised to find my pulse 110, and the servant's 120. He still continued to shake and tremble with cold, and his pulsations were full and soft, like a person in an ague fit.

WHEN we were dressed, I compared the velocity again, and found his pulse 100, my own 98. He was still cold and chilly. After walking gently home, and sitting still half an hour, my pulse was 78, the servant's 72. We were both weakened by this experiment, and I had a sort of trembling of the calves of my legs, which went off on eating.

V.

PULSE 96. I went into the sea fasting. After plunging over head, I returned to the machine immediately, and by placing

my hand upon the region of the heart, counted the pulsations 144. When I was dressed, pulse 72, I felt cooled and refreshed. Thermometer 65 in the sea. In the shade of the machine the thermometer was only 62; which is a curious fact, and deserves the attention of physicians. This degree of cold may probably be accounted for from the evaporation which takes place from the wet matts, floor, and towels. I have very often experienced a great chilliness during the time I continued in the machine, which could only be accounted for from this cause—that the sea was, in fact, a warm-bath, compared to the temperature of the air in such a place. The greatest caution is necessary on the part of the sick, and all invalids should have a machine perfectly dry.

VI.

BEFORE breakfast, pulse 72; thermom. in the machine 63—in the sea 63—and in the shade, exposed to the wind, N. W.

*

only

only 60°; I applied the thermometer under my arm-pits before I entered the sea, and found it rise to 96.—When I was in the water I could observe no difference in the temperature of any part of my body, and that of the water; but being so unfortunate as to break my thermometer in this experiment, and not being able to procure another in this place, I am unable to speak with that certainty that I could wish on this subject. But I have reason to think, from my former experiments, that the thermometer will prove of the same height on the surface of the body that it is in the water.

AFTER swimming for some time, I returned to the machine, and found my pulse 140; which increased celerity I have frequently observed to be caused by the exercise of swimming, and from which circumstance I am induced to think, that it may become a salutary mode of using exercise in many complaints.

From

From these EXPERIMENTS we deduce
the following CONCLUSIONS.

1. THE cold-bath produces a powerful
change on the moving powers.

2. IT produces a powerful effect, by
altering the course of the circulating
fluids.

3. THE action of the heart and larger
arteries is weakened during the applica-
tion of the cold-bath, but increased by
its subsequent operation.

4. THE action of the smaller vessels is,
likewise, consequently increased by the
operation of the cold-bath.

5. DURING the application of the cold,
the body loses a portion of its sensible
heat, and the blood is propelled from the
surface, and accumulated on the internal
organs.

6. ON

6. ON the recovery of the sensible heat the vessels on the surface are stimulated, and the action of the heart and larger arteries is at the same time excited by the preternatural stimulus of the accumulated fluid.

7. THE operation of cold or sea-bathing resembles the effects of known stimulants. It checks * increased morbid actions, and increases morbid inaction †.

THESE are all the experiments which I shall subjoin—But I have tried, and still am trying many more.—A further elucidation, at present, appears unnecessary. I shall, however, always be ready to attend to the suggestions of the learned with due respect.

* Experiment II.

† Experiment IV.

F I N I S.

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